

SPARK GAP

Vol. 33, Issue 6, June 2016 MARC - Serving Central Indiana Communities for thirty-three years

On our MARC:

I would like to thank all those that came out for the Strawberry Fest. We had over 15 members that came out to show support. While we were talking with people that would stop by and ask questions, we had Bruce and Steve on the radio's making contact with other hams. Every one there seemed to be enjoying the day. We couldn't have asked for a better day. Again thank you for all the hard work. Would also like to thank Steve Ellis for bringing all of his equipment to get the antenna's up. Next on our agenda is Field Day. As I have spoken with Sherriff Cox, we will be holding Field Day in the old radio room. I'm hoping the weather will be nicer than last year. If you remember, it was kinda cold. We will have more information on Field Day to be discussed at the meeting. I would like thank all those who came out for the dinner social this month. We had 26 people in attendance. Everyone was having a good time. Good to see some faces that we haven't seen in a while. Hopefully we will get just as many or maybe more in July. See you Saturday. Coffee will be on.

Jacki-KI6QOG
President

FEMA Encourages Preparedness for the 2016 Hurricane Season; ARES Should be Ready Now

FEMA, an ARRL partner, is calling on individuals and families across the nation to prepare for the 2016 Atlantic Hurricane season, which began two weeks ago and runs through November 30. The NOAA Climate Prediction Center outlook for 2016, released at the end of May, states the season will most likely be near-normal, but uncertainty about the formation of Atlantic storms makes predicting this season particularly difficult.

ARES operators should already have plans and procedures, protocols, and frequencies in place, ready for emergencies and disasters spinning off from hurricanes. Inland ARES groups should also be prepared as severe weather generated by hurricanes can impact communities hundreds of miles inland. When a hurricane hits, it can bring high winds, heavy rainfall, coastal and inland flooding, rip currents, and even tornadoes. Storm surge produced by hurricanes poses the greatest threat to life and property along the coast.

"The United States has not had a significant impact from a hurricane or tropical storm since Hurricane Sandy struck in 2012," said FEMA Administrator Craig Fugate, KK4INZ. "But luck isn't a strategy when it comes to being ready. If you live in a potentially affected state, you are at risk for storm surge, extreme winds and flooding during a hurricane. Now is the time for you to learn your evacuation routes and develop a hurricane evacuation plan. Prepare now and enjoy the summer with confidence that if a storm threatens you'll be ready."



Birthdays for the month of June:

WA9VBG-Sam Carter

W8ISH-Jack Parker

K9OMT-Michael Turner

KD9DHX-Josh Marshall



FCC Warns that Use of Authorized Equipment Must Comply with All Laws and Rules

An FCC Enforcement Advisory released in late May seems to state the obvious: All FCC-authorized equipment must be used in compliance with laws and rules, and that people or businesses violating federal law or FCC rules are subject to enforcement action. A closer look, however, suggests that the prominently emblazoned advisory is aimed at illegal “off-label use” of radio transmitting devices. Before such equipment may be used, manufactured, sold, marketed, or imported into the US, the FCC generally requires that it first receive a grant of equipment authorization, demonstrating that it meets congressionally mandated Commission technical standards, which include requirements to minimize a device’s potential to cause harmful interference.

“This equipment ranges from small devices like your smartphone and WiFi-enabled thermostat to powerful transmitters used by broadcasters and wireless carriers,” the FCC advisory explained. This also can include such Amateur Radio equipment as linear amplifiers, and transceivers with scanning receivers; most ham radio equipment does not require a grant of authorization for use in accordance with Part 97 regulations.

“Even if a device has an authorization, however, it may not be used indiscriminately,” the advisory continued. “Authorized equipment must be used in a manner that complies with federal law and the Commission’s rules.” This does not apply to devices and systems the government uses on its own frequencies, the advisory pointed out.

“For licensed services, authorized equipment also must be used in a manner that complies with the terms of the license,” the Commission said. “Federal law prohibits the use of any authorized equipment in a manner that is inconsistent with the terms of its equipment authorization or that is in violation of the Communications Act or the Commission’s rules.” The FCC said an equipment authorization only signifies that a device meets FCC technical standards; it is not an authorization to use a device in any possible way.”

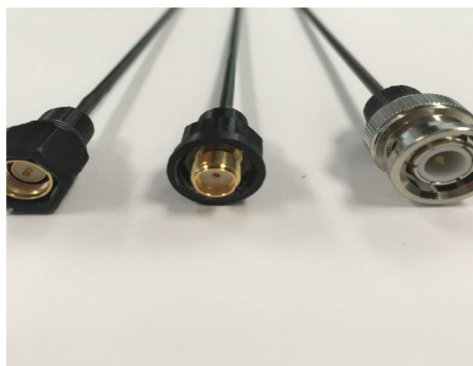
The FCC offered some examples of authorized equipment being used in an unlawful manner:

- The use of authorized WiFi equipment to intentionally disrupt the lawful operation of neighboring WiFi networks.
- The use of authorized broadcast transmitters to operate unlicensed or “pirate” radio stations.
- The use of authorized Unlicensed National Information Infrastructure (U-NII) devices on unauthorized frequencies or, on certain frequencies, without a dynamic frequency selection (DFS) radar detection mechanism enabled.
- The use of authorized WiFi routers on unauthorized channels or on authorized channels at unauthorized power levels.
- The programming and use of Private Land Mobile Radio devices (Part 90 radios) to operate on unauthorized channels.

The FCC’s revised rules make it illegal to include user-reprogrammable firmware in such devices as routers, so that they can be re-flashed post sale. For some time now, hams involved in broadband WiFi networking activities have been modifying commonplace routers for use on Amateur Radio frequencies — a legal activity. It is not legal, however, to use a radio transmitting device authorized in one radio service under the provisions of another radio service for which it has not received required FCC authorization, such as using an Amateur Radio transceiver on the Family Radio Service. And recent FCC enforcement proceedings have involved the illegal use of devices possibly authorized for other purposes, to block cellular telephone signals.

The advisory suggested that anyone wishing to complain about off-brand use of authorized devices or otherwise used in a manner that violates FCC rules or the Communications Act can complain to the Commission.

Super-Elastic Signal Stick – Dual Band 2m/440



I recently purchased one of these antennas and I am very pleased with its performance and how rugged it is made. It is available in all the necessary connectors for your HT as shown in the above picture.

These are hand-made, ultra lightweight, and nearly indestructible antennas which outperform the stock antenna your handheld radio came with by a significant margin. Originally designed to use as a fundraiser for a youth group, sales from these remarkable antennas are now the primary source of funding for our free ham radio study website, <https://hamstudy.org>.

Features:

- Dual band – 1/4 wave on 2m (144-148Mhz) and 3/4 wave on 70cm (440-448Mhz)
- Custom designed 3d printed tip and connector cover providing unprecedented strength
- Approximately 18.25" long
- Made of **Nitinol**, a very resilient and ridiculously flexible nickel-titanium alloy
- Extremely light-weight — reduces connector strain on your radio!
- Hand-made by hams in Utah
- Lifetime guarantee!**

For more information please visit the website:

<https://signalstuff.com/product/super-elastic-signal-stick/>

..... Bob N9SIU

** Editor Note: The hand made antennas go for a very good cause and that is Ham Radio education.

**HAMSTUDY**

NEW BROADCAST
QSO LIVE EACH TUESDAY EVENING AT 8 PM CDT (9 PM EDT)
ON WTWW ON 5085 KHZ



Ted Randall WB8PUM HOST
David Klimkowski KG4WXW CO HOST

Design Advances Make Portable Operation Easier, More Fun

By Dan Romanchik, KB6NU

I've just returned from the Dayton Hamvention. Dayton was a blast as usual, and if there's one thing I took away from this year's event it's that portable operation is not only becoming more popular, but more sophisticated as well. In fact, it's a virtuous circle. More sophisticated portable equipment is making portable operation more popular, which is spurring manufacturers to make more sophisticated equipment, which is making portable operation even more popular, and around we go.

This is perhaps most easily seen in the evolution of the Elecraft products. One of their first rigs was the K1, a small rig that was frequently toted out into the field, even though it wasn't really designed for that purpose. It had a small form factor, but had a conventional front panel layout.

The next evolution was the KX1. This CW-only radio was designed specifically for field work. It originally only covered 40m and 80m, and had a very limited front panel, but its built-in battery pack and KXPD1 paddle made it a great choice for portable operators when it was introduced in 2004.

A big leap forward was made when they introduced the KX3 in 2012. This radio combined a bunch of features never before found in a portable rig. The KX3 features an SDR architecture and covers all modes, including (SSB, CW, Data, FM, AM); used the same full-sized LCD display as the K3; has advanced DSP features; and can be connected to a computer via USB for firmware upgrades and for use with other ham radio software. The KX3 is so full-featured that many operators use it as their main rig with a suitable linear amplifier.

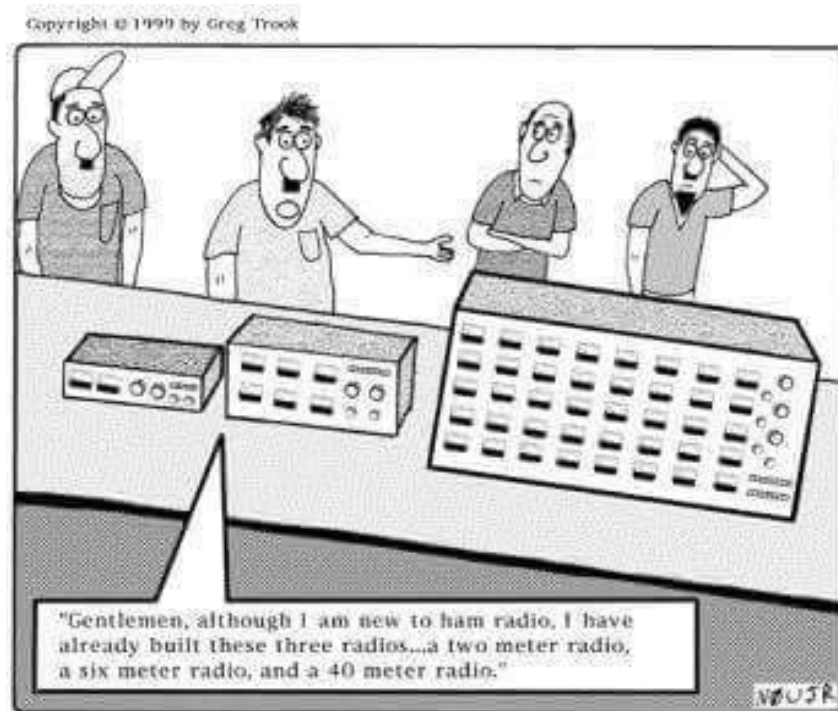
At Dayton 2016, Elecraft took this concept even further and introduced the KX2. It's about half the size of the KX3, but yet has almost all of the features of the KX3. There was a tremendous amount of buzz over this radio at Dayton among portable operation aficionados. The base price of the KX2 is \$750, and with options, will cost you about \$1,000.

Of course, Elecraft isn't the only company competing in this market. LNR Precision sells a radio called the LD-5, and at Dayton, they introduced the LD-11, which like the KX3 and KX2 features an SDR architecture and covers 160m - 6m. This radio goes for about \$800, and has also proven to be popular among portable operators.

Dayton also had a number of exhibitors that supplied products other than radios to aid portable operation. There were several portable antenna manufacturers, including Buddipole (buddipole.com) and PackTenna (packtenna.com), and BiEnno Power (biennopower.com) was also there, showing off their new lithium-iron batteries,

While radios like the KX2 and LD-11, at relatively low prices, allow operators to easily get out into the field, portable operation would not be as popular as it is without organized activities. Programs like the Summits on the Air (SOTA, www.sota.org.uk, na.sota.org) and the National Parks on the Air (NPOTA, npota.arrl.org) make portable operation even more fun. These programs do this by providing a structure in which operators can find one another and gain awards for operating. SOTA did not have a booth at Dayton, but NPOTA was a big part of the ARRL section there.

If you aren't already a portable operator, you should give it a try! You don't have to invest a bunch of money in a rig to just try it. KX1s have been had for less than \$400, and simpler QRP rigs cost a lot less. Getting outside and operating in the fresh air is a lot of fun and could give you a whole new perspective on amateur radio.



June 13, 2016 Strawberry Fest

by Jack -W8ISH

Four tents, several tables and chairs plus two forty foot masts were all set up in minutes to establish Camp Strawberry June 11th. This was the 24th MARC Amateur Radio demonstration supporting White River Township Fire Department Strawberry Festival.

Starting with breakfast at Bob Evans, the heat was on. Over a dozen hams chowed down before braving the early morning heat to begin setting up camp. The breakfast bunch was greeted by a few more club members at Sugar Grove Elementary as we set up multiple ham radio stations.

Steve Ellis-AF9SE brought his twin towers and a G5RV antenna. Steve Carmean-K9DY was quick to set up his vertical HF Ventenna for 20 meters while Jack Parker-W8ISH assembled a portable VHF for later use. Bruce Tisdale-K9ICP, Ron Schuetz-K9THR, Steve-K9DY and Jack-W8ISH all brought their HF radios and Ventennas in case we needed more. Ken Barr-KD9ALA was standing by in case we needed his Electracraft rig. If you didn't know better it looked and sounded like a rehearsal for Field Day. Steve, Bruce, Ron and Jack took turns throughout the day working National Parks on the Air stations.

Mike Rose KC9WLR used his tower climbing expertise to fly a length of coax over the driveway for one of the HF antennas. Mike used a light pole and a portable mast to bridge the gap so the fire apparatus could leave their parking slots as needed.

Marlys Barr-KD9BHM and Jacki Frederick-KI6QOG took care of hanging club banners and setting up a PR table. That area of the tent city was a busy place all day with lots of people showing interest in ham radio. We may have snagged a couple of new members who recently got their license but have not yet joined the club. Their visit prompted a lot of talk about buying your first radio and on how to program and operate their first purchase.

Despite the oppressive heat we had a dozen or so club members stop by to chat and enjoy the delicious strawberry shortcake being served by the fire fighters.

Thanks to everyone who participated in the day long event.

Pictures by Jack-W8ISH



Mike & Bob acting as anchors for the pole



Mike KC9WLR up the ladder



Pres. Jackie, Marlys and Chief Pell



Tent City



Bruce and his grandson



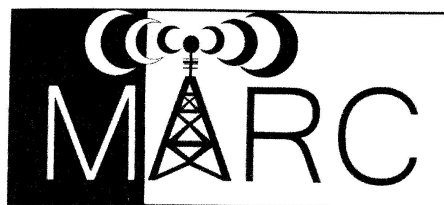
Steve, Bob & Phil Vendtenna



Bob showing DMR radio



Wilson tying it down



Spot Not

Across

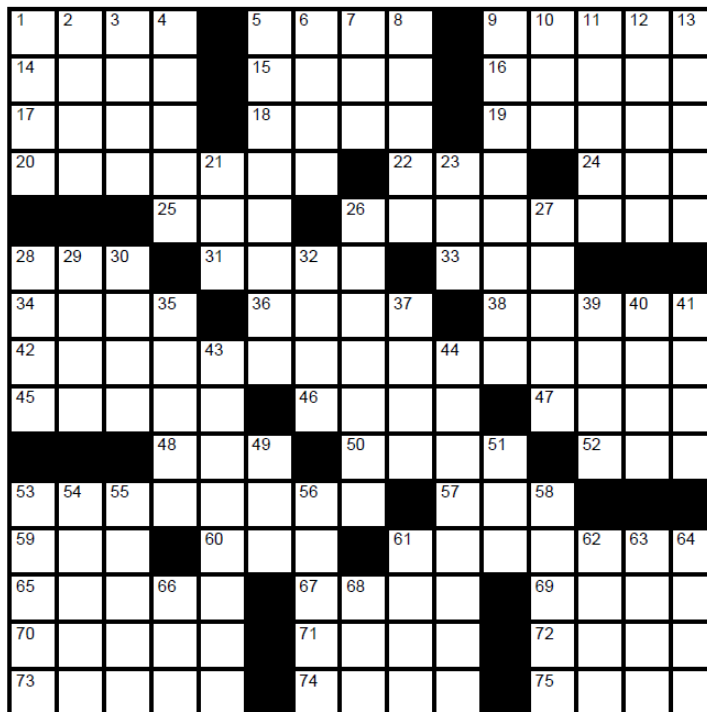
1. Eight furlongs
5. Propagation predictor, with solar
9. Early ham technology
14. 7700 maker
15. Network, especially in I-land
16. Blender setting
17. Solar WX org.
18. Kit maker of the 1960s
19. Poem of lament
20. Propagation predictors, with 58 down
22. OX dir. from XE
24. Formerly known as
25. Chop (off)
26. Solar minimum result
28. Fed. fiscal agency
31. "Encore!"
33. 144 MHz
34. Phoned

36. Deteriorates
38. Post det. stage
42. Hams eagerly await it
45. 1970s sat.
46. Garbage barge
47. "I'm ___ your tricks!"
48. Checks in check ins
50. Calls from NJ or NY
52. What some amateurs are, professionally
53. The 2009 sun, mostly
57. W7 ARRL sect.
59. 440 MHz region, say
60. Prefix, opposite of 63 down
61. Early receiver maker
65. Wanderer
67. Generate RF sig.
69. Handle

70. Nonsensical
71. Tropospheric propagation path
72. Connectors with shells
73. FD abodes
74. Ckts. for CW
75. Put in stitches

Down

1. Subcompact
2. Desktop feature
3. PA front panel label
4. In-box contents
5. C6 city
6. KH6 rings
7. GMT replacer
8. Veracruz prefix
9. Indy place
10. YA cent



11. Hara, for example
12. Superhet alternative
13. Sent CW
21. It may follow a dot
23. ___ King Cole
26. Picks up, on the air
27. Fab
28. Shamu, for one
29. W0 Clinic
30. Locking connectors
32. Column crossers
35. Sparkle
37. KC4 WX
39. Code for code
40. Receiver rear panel label
41. Con cons
43. Rules out
44. 33 dBm
49. K7UGA, once: Abbr.
51. Ant. measurement
53. 56 down measurement
54. Second SS weekend
55. GD isle
56. See 53 down
58. Types of 20 across
61. Micro micro
62. Antenna measurement
63. Prefix, with directional
64. What crank-up sections do when cranked-down
66. Dip. or Inv-V, e.g.
68. Propagation condx indicator

These are free for personal use and re-printable with permission for non-commercial purposes (e.g. in a club newsletter). That is, you can't charge anything for them and you can't use them in any printed or Web publication that charges money for a copy or access. Thanks to my puzzle testers, reviewers, error-finders, critics: K1DG, W1JA, W2SQ, W3RQ.

AMERICA'S QUIETEST TOWN WHERE CELL PHONES ARE BANNED

Story by Wayne Drash and Evelio Contreras,

Green Bank, West Virginia

Mountain Turnpike twists through dense oak, hickory and spruce trees and keeps winding, like a slithering snake, through the mountains that separate Virginia and West Virginia. But on a clear day, looking south from the Monongahela National Forest, what looks like a giant white Lego structure emerges from this sea of green.

And that's about when it starts. Your cell phone drops reception. Your radio spins, unable to pull up any stations. You can shake your phone all you want, but it won't help. If you're a city slicker accustomed to continuous connectivity, you might start to panic.

Keep driving and hook onto the Potomac Highlands Trail toward that magnificent structure. You eventually reach Green Bank, population 143, best known as The Quietest Town in America. Where cell phones and wireless devices are banned, their use potentially prosecutable by law.

Technology is constantly changing how we live and communicate. But in Green Bank, it is the presence of some of the most sophisticated technology on Earth that preserves this rural enclave, a throwback town to yesteryear.

This is where you come to get away from the United States. Here, instant connectivity is extinct. Even microwaves are frowned upon by the region's scientists.

It's not that people are backward or fearful of technology. Quite the opposite.

Tucked in the Allegheny Mountains, researchers are listening to exploding galaxies at the edge of the universe -- a signal that is so faint, it's about a billionth of a billionth of a millionth of a watt.

A cell phone emits about 3 watts and can swamp the sounds that are teaching astronomers how the Milky Way was formed and how it is still evolving. So, cell phone use is limited in the National Radio Quiet Zone, a 13,000-square mile area that limits radio frequency in the eastern half of West Virginia and parts of Virginia, stretching to the Maryland border.

The quiet zone gets drastically more restrictive the closer you get to Green Bank, home to the world's largest steerable radio telescope, the Robert C. Byrd Green Bank Telescope, operated by the National Radio Astronomy Observatory.

The main telescope weighs 17 million pounds, spans about 2 acres wide and stretches 485 feet into the air. Several smaller telescopes are sprinkled around it amid 2,700 acres of parkland. Leave your phone and digital camera behind.

The telescope can hear sounds from hundreds of millions of miles away and attracts some of the leading researchers in the world.

"What we have here is an amazing combination of a very rural atmosphere with extremely high technology," says Jay Lockman, the principal scientist of the Green Bank Telescope.

"If you want to hear quiet noises, you need to keep the noise down."

He laughs when quizzed about the lack of cell phone usage here. "For the last 5,000 years, human beings have managed to flourish without this," he says, "so to me it seems a little odd that people now find the absence of cell phones something worth discussing."

The 'Ghostbusters' surveillance truck

The white Dodge Ram pickup looks like something from "Ghostbusters." Giant omnidirectional antennas are attached to its roof, and its passenger seat has been replaced with a receiver, Doppler system and spectrum analyzer.

The truck listens for anything that can disrupt sounds from outer space. When it rumbles down the back roads of West Virginia, residents are known to unplug their microwaves so they don't get busted.

Today, as the truck lumbers, the spectrum analyzer senses a constant spewing stream of energy. "It's very, very prominent," says Jonah Bauserman, one of two men known as the "RFI police" with the observatory. RFI, or radio frequency interference, can come from many things: a cell phone, microwave oven, wireless device or arcing power line.

Bauserman cuts the truck across a field to a power pole along a fence line between a home and observatory property. He steps from the vehicle and pulls out a weird antenna-like device called a yagi stick and waves it like a magic wand.

And there's his answer. A cable line has been chewed by a varmint. Nearby are groundhog holes. "I'm pretty sure that's our culprit right there," Bauserman says.

Yes, a hungry groundhog may have just ruined an astronomer's search for water on the moon -- a study going on at the observatory at this exact moment.

Stories abound at the lab of other "RFI" problems over the years. Like the tale of the dog and his blanket. That was more than a decade ago, when scientists noticed a sporadic, intense signal coming from nearby.

It turned out to be a heating pad in a doghouse. When the dog got wet and slept on the blanket, the heating pad sent out bursts of energy that disrupted work at the observatory. The solution: Scientists bought a waterproof heating pad. "We're happy, the dog's happy."

Cute as those stories might be, this is no laughing matter. Imagine being a scientist who waits a lifetime to use the telescope -- only to have data lost because of a wet dog.

"At best, you weed through your data, trying to toss out the interfering signals," Lockman says. "At worst, it just kills your work completely."

Some people 'really freak out'

White picket fences adorn the yards of early 20th century homes in Green Bank, and a quaint business strip includes an arts center, antique shop and quilt and basket store. Like most small towns, Green Bank is anchored by a school, post office, Dollar General and barbershop. Its library was designated the nation's No. 1 rural library in 2003.

One gas station serves the town.

There are no stoplights. In fact, there are only three in all of Pocahontas County. An Oldsmobile-turned-GMC dealership is closed. The Church of God stands at the south of town.

Folks square dance here and bring gelatin salads with marshmallows to their socials. They have ham radios and landline phones. They do have the Internet, either with dial-up service or Ethernet cable.

A few confess to having Wi-Fi, a fact that annoys Bauserman and others at the telescope.

He points toward the main road and the homes with guilty parties using Wi-Fi. He tries to find an alternative to knocking on their doors, often making sure astronomers switch to different frequencies so

their work won't be disrupted and residents can live their lives. He's never had to seek prosecution.

"We don't want to have a riot on our hands."

Beyond the residents who stray from the rules, arcing power lines and cut cable lines that are not capped are most problematic. Satellites beaming down and aircraft using radar can cause problems, too.

Within a mile of the telescope, only diesel vehicles are allowed because spark plugs could overwhelm the sounds from galaxies. Workers communicate using walkie-talkies on very specific frequencies.

There are about 25 to 30 homes on observatory property for employees. Anyone living there signs a waiver not to use microwaves or wireless devices.

More than a dozen high-end radio telescopes exist around the world, including in Australia, China, India, Japan, France and Sweden. The observatory here was founded in 1956, and its first telescope began operating in 1959. Astrophysicist Frank Drake soon used the telescope to search for extraterrestrial intelligence, the first time anyone used modern equipment to search for life beyond Earth. (He didn't hear anything.)

Power lines, radar, radio and spark plugs back then were the biggest source of interference. The area was chosen because of the small population in Pocahontas County and because the mountains provide a nice protective barrier from interference.

But that was long before today's wireless-reliant society. Policing the 25,000 tourists who visit the observatory every year can be a challenge.

"Some people when they come here really freak out because they can't have access to their little devices," Lockman says.

He and his family moved here two decades ago. He loves the combination of high-tech science and country living. In fact, he gets annoyed by folks when he travels beyond Green Bank.

"To tell you the truth," he says, "it seems pretty strange and annoying to see people always diddling with their devices and not paying attention to what's going on around them."

Many residents around Green Bank feel the same: like, what's wrong with the rest of America to be so attached to a phone?

Katherine Lafleur breaks down in tears outside her home over the country's love for their cell phones -- because devices meant to keep us in touch have made us out-of-touch.

"When they're in the restaurants, often you'll see two people having dinner together," she says, "but they're both on their cell phone."

"It's heartbreaking just to see mothers who are not paying attention to their beautiful children who are --" Her voice cracks, unable to speak further. "I'm sorry," she says.

Hanna Sizemore admits she was one of those addicted-to-her-device Americans. She grew up in Green Bank, went off to college and eventually landed a job with NASA in Silicon Valley while her husband worked at Google.

Not having a cell phone in the house now, she says, is part of the tradeoff of living here. "We're in a little bubble of the past here," she says. "The mandate to disconnect really helps you think carefully about interaction with technology."

She points to her backyard -- a gorgeous view of the Allegheny Mountains. "It's amazing," she says. "It's kind of a little oasis."

Harold Crist is 90 and taught many of the residents here in the 1950s when he was a teacher at the high school. He remains the regional sage.

Not having a cell phone in his house in neighboring Arbovale is no sweat off his back. He rigged electricity up to the old place around 1935. Try living in these parts during frigid winters with wood stoves and blankets, he says.

"I've been fortunate to go from the beginning of the automobile and the airplane to today," he says.

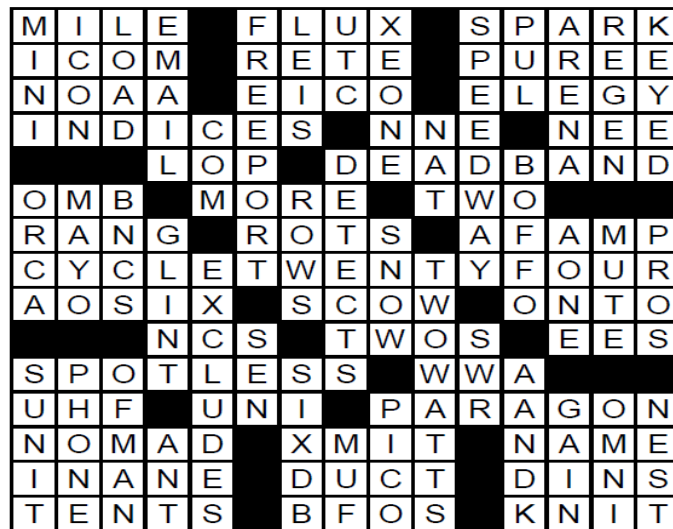
Crist admits living with some inconveniences because of the giant telescope. He once had the "RFI police" show up at his door. Turned out his electronic doorbell was interfering with the lab. They hauled his doorbell off, tinkered with it and returned it retrofitted to conform to lab rules.

Far from complaining about their circumstances, residents in these parts fear their secret will get out -- that vacation spots will pop up advertising this refuge from connectivity. They've already seen an influx of about a dozen "electrosensitives," people who believe electromagnetic frequencies are the source of their illnesses.

Folks here relish their place in history as America's quietest town, where researchers study galaxies, the ice sheets on Europa, and the complex molecules found in clouds between stars.

If there's life out there, they'll hear it first. They just won't be able to notify anyone by cell phone.

..... CNN, Copyright.... June 2016



INTERESTED IN UPGRADING TO GENERAL CLASS?

MARC is considering a general class licensure class at some point later this year.

Anyone interested should contact either Bruce Tisdale

(VicePresident@Midstatehams.org) or Jacki Fredericks (President@Midstatehams.org)

in regard to participating.

Additional details will be communicated based on the level of interest.

2016 List of Hamfests in Indiana / Convention

07/8&9/2016 46th Indianapolis Hamfest

Location: Marion County Fairgrounds 7300 East Troy Ave. Indianapolis, IN

Talk-in: 146.760 (-600)

Sponcer: Indianapolis Hamfest Association

Website: <http://www.indyhamfest.com>

09/17/2016 Bloomington ARC Hamfest

Location: Monroe County Fairgrounds, 5700 West Airport Road, Bloomington, IN 47401

Sponsor: Bloomington Amateur Radio Club

Website: <http://www.bloomingtonradio.org>

11/12/2016 Indiana State Convention

(Fort Wayne Hamfest & Computer Expo)

Location: Allen County War Memorial Coliseum, 4000 Parnell Avenue, Fort Wayne, IN 46801

Sponsor: Allen County Amateur Radio Technical Society

Website: <http://www.fortwaynehamfest.com>

JUNE 25TH & 26TH, 2016



MID-STATE AMATEUR RADIO CLUB

The Mid-State Amateur Radio Club meets the THIRD SATURDAY of each month in the basement of the Johnson County Law Enforcement Center, Conference Room 1111 Hospital Road, Franklin, Indiana 46131.

See our website, www.midstatehams.org, for maps on how to get to our meeting.

Everyone is welcome; you do not have to be a HAM to attend our meetings or a member of the club.

WA9RDF Repeaters:

146.835/
146.235 MHz
(151.4 Hz PL Tone)

WA9RDF Repeater:

443.525/
448.525 MHz
(151.4 Hz PL Tone)

Weekly Net: Sunday evening 7:00 PM ARES/RACES members and ALL RADIO AMATEURS
146.835/146.235 MHz (151.4 Hz PL Tone)

The Official Newsletter of the Mid-State Amateur Radio Club

P.O. Box 836
Franklin, Indiana
46131

Editor: Robert LaGrange N9SIU

Please send your articles to my email: n9siu@yahoo.com no later than the 3rd of the month

Remember Club Dues for 2016 are due; please see Cy Young N9CHY at the meeting Saturday.

